IN SEARCH OF RED DWARF STARS:

APPLICATION OF THREE-COLOR PHOTOMETRIC TECHNIQUES

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ABSTRACT

This paper presents the photometric luminosity classification of M dwarfs in Kaptyn's Selected Area 124 (SA124). This project is part of an ongoing program at Ball State University to use R, I, and CaH photometry in an attempt to probe low luminosity star contributions to the luminosity function. Data is taken at the Southeastern Association for Research in Astronomy (SARA) telescope located at Kitt Peak, Arizona. With a limiting magnitude of R=15.0, we have observed ~75% of a full square degree in SA124 and have detected 19 M dwarf candidates, which are then confirmed using matched 2MASS J, H, and K magnitudes. We present the detections of 19 ±4.4 M dwarfs observed in SA124. The current estimates of our luminosity function are consistent with those previously determined for the galactic plane.